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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,491	06/09/2000	Robert M. English	103.1032.02	2502

22883 7590 05/20/2004  
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EXAMINER

SALAD, ABDULLAHI ELM I

ART UNIT PAPER NUMBER

2157

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/590,491

**Applicant(s)**

ENGLISH, ROBERT M.

**Examiner**

Salad E Abdullahi

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/25/2004 has been entered.
2. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of new ground of rejection:

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 7 recites the limitation "said simulated thread" in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Klein U.S. Patent No. 5,835,763[hereinafter Klein].

As per claims 1, Klein discloses disclose a system for implementing multiple thread pools including:

Simulating plurality of dynamically-allocated thread using a single statically-allocated thread (see fig. 2, and col. 7, lines 2-32);

maintaining state information used by each dynamically-allocated thread in variables maintained by said statically-allocated thread (see col. 7, , lines 61 to col. 8, line 39).

In considering claim 2, Klein discloses the method as in claim 1, further including maintaining a routine capable of being suspend, a set of entry points into which said routine is capable of re-entered after said suspension or interruption (see col. 12, line 65 to col. 13, line 30).

In considering claim 3, Klein discloses the method as in claim 1, further including generating set of entry points in response of or more programming macros(see col. 7, lines 9-11).

In considering claim 4, Klein discloses the method as in claim 1, further including maintaining high concurrence among threads without maintaining a substantial amount of state information of the simulated threads (see fig. 2 and col. 6, line 61 to col. 7, line 11).

In considering claim 5, Klein disclose the method as claimed in claim 1, wherein said state information includes a relatively small procedure call stack for the simulated thread (see fig. 2, element 40 and col. 6, line 61 to col. 7, line 11).

In considering claim 6, Klein discloses the method of claim 1, wherein said state information includes a relatively small collection of local variables and other state information for the simulated thread (see col. 6, line 61 to col. 7, line 11).

As per claim 7, Klein disclose an apparatus including a file server system(computer system 10) having a single statically-allocated thread including plurality of dynamically-allocated see col. 7, lines 2-20), said statically-allocated thread maintaining variables that maintain state information used by each of a simulated thread(see fig. 2 and col. 4, lines 36-40 and col. 6, line 61 to col. 7, line 11).

In considering claim 8, Klein discloses the method as in claim 7, further including maintaining a routine capable of being suspend, a set of entry points into which said routine is capable of re-entered after said suspension or interruption (see col. 12, line 65 to col. 13, line 30).

In considering claim 9, Klein discloses the method as in claim 8, further including generating set of entry points in response of or more programming macros (see col. 7, lines 9-11).

In considering claim 10, Klein disclose the method as claimed in claim 7, wherein said state information includes a relatively small procedure call stack for the simulated thread (see fig. 2, element 40 and col. 6, line 61 to col. 7, line 11).

In considering claim 11, Klein discloses the method of claim 7, wherein said state information includes a relatively small collection of local variables and other state information for the simulated thread (see col. 6, line 61 to col. 7, line 11).

In considering claims 12, Klein discloses the method as in claim 1, wherein said plurality of dynamically-allocated threads are simulated using statistically allocated threads under an operating system (see col. 4, lines 36-43)

In considering claim 13, Klein discloses the method as in claim 1, wherein said statically-allocated thread simulates said plurality of dynamically-allocated threads by using a scheduler (thread manager 38) to call thread blocks for said plurality of dynamically-allocated threads (see fig. 2, element 38 and col. 7, lines 12-41).

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In considering claim 14, Klein discloses the method as in claim 13, wherein said thread blocks (i.e., thread pool 40) are stored in a linked list maintained by statically allocated thread (see col. 7, lines 1-25).

In considering claim 15, Klein discloses the method as in claim 14, wherein said thread blocks (i.e., thread pool 40) in said linked list are called in turn by scheduler (see col. 7, lines 1-25).

In considering claim 16, Klein discloses the method as in claim 4, wherein an amount of state information that is maintained is less than an amount of state information that would be necessary for plural actual dynamically-allocated threads (see col. 6, line 61 to col. 7, line 11).

In considering claim 17, Klein discloses the method as in claim 5, wherein said relatively small procedure call stack is smaller than a procedure call stack that would be necessary for plural actual dynamically-allocated threads (see col. 7, lines 21-32).

In considering claim 18, Guedalia discloses an apparatus as in claim 7, wherein said file server system is incapable of executing plural actual dynamically-allocated threads (see col. 3, line 61 to col. 4, line 7, and col. 21, lines 5-65).

In considering claim 19, Klein discloses the apparatus as in claim 7, where said statically-allocated thread simulates said plurality of dynamically-allocated threads by

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using a scheduler to call thread blocks for said plurality of dynamically-allocated threads (see col. 7, lines 1-25).

In considering claim 20, Klein discloses the apparatus as in claim 19, wherein said thread blocks are stored in a linked list maintained by said statically-allocated thread (see fig.2, and col. 7, lines 1-25).

In considering claim 21, Klein discloses the apparatus as in claim 20, wherein said thread blocks in said linked list are called in turn by said scheduler (see col. 7, lines 1-25).

In considering claim 22, Klein discloses the apparatus as in claim 10, wherein said relatively small procedure call stack is smaller than a procedure call stack that would be necessary for plural actual dynamically-allocated threads (see col. 7, lines 21-32).

In considering claim 23, Klein discloses apparatus as in claim 11, wherein said relatively small collection of local variables and other state information is smaller than a collection of local variables and other state information that would be necessary for plural actual dynamically-allocated threads (see col. 6, line 61 to col. 7, line 11).



In considering claim 24, Klein discloses a method of implementing a plurality of simulated dynamically-allocated threads using a single statically-allocated thread, comprising:

using a scheduler (thread manager 38) implemented by said single statically-allocated thread to call thread blocks for said plurality of simulated dynamically-allocated threads (see fig. 2, and col. 7, lines 1-20); and

maintaining state information used each of said plurality of simulated dynamically-allocated threads in variable maintained by said statically-allocated thread (see fig. 2 and col. 4, lines 36-40 and col. 6, line 61 to col. 7, line 11).

In considering claim 25, Klein discloses a method as in claim 24, wherein said thread blocks are stored in a linked list maintained by said statically-allocated thread (see fig.2, and col. 7, lines 1-25).

In considering claim 26, Klein discloses a method as in claim 25, wherein said thread blocks in said linked list are called in turn by said scheduler (see col. 7, lines 1-25).

In considering claim 27, Klein discloses the apparatus including a server (computer system 10) that implements a plurality of simulated dynamically-allocated threads using a single statically-allocated thread, comprising:

a processor (processor is inherent on computer system 10) that executes a scheduler (thread manager 38) implemented by said single statically-allocated thread to call

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thread blocks for said plurality of simulated dynamically-allocated threads(see fig. 2 and col. 6, line 61 to col. 7, line 20); and

memory (memory is inherent on computer system 10) that stores state information used by regarding each of said plurality of simulated dynamically-allocated threads in variables maintained by said statically-allocated thread (see fig. 2 and col. 4, lines 36-40 and col. 6, line 61 to col. 7, line 11).

In considering claim 28, Klein discloses the apparatus as in claim 27, wherein said thread blocks are stored in a linked list maintained in said memory by said statically-allocated thread (see fig. 2, and col. 7, lines 1-25).

In considering claim 29, Klein discloses the apparatus as in claim 28, wherein said thread blocks in said linked list are called in turn by said scheduler (see col. 7, lines 1-25).

### CONCLUSION

7. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salad E Abdullahi whose telephone number is 703-308-8441. The examiner can normally be reached on 8:30 - 5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 703-305-4792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any response to this action should mailed to:**

Box AF

Commissioner of Patents and Trademarks

Washington, DC 20231

**or faxed to: (703) (872-9306)**

  
Abdullahi Salad  
Examiner AU 2157  
5/11/2004